# FLORENCE COPPER

#### FLORENCE COPPER INC.

1575 W. Hunt Highway, Florence, Arizona 85132 USA

florencecopper.com

November 20, 2019

ADEQ Water Quality Compliance Section Mail Code 5415B-1 1110 West Washington Street Phoenix, Arizona 85007

Attention:

Mr. Tracy Bunch

Subject:

Weekly Monitoring Report for Week Ending 11/09/2019

Florence Copper, Production Test Facility

Aquifer Protection Permit No. 106360, LTF 61845

Dear Mr. Bunch:

Florence Copper is submitting this report in accordance with Table 4.1-8 and Section 2.7.4.4 of the Production Test Facility Temporary Aquifer Protection Permit (APP) No. 106360.

In accordance with Table 4.1-8 of the APP, this report includes In-Situ Best Available Demonstrated Control Technology (BADCT) compliance monitoring for the PTF that is required to be reported on a weekly basis including:

- Recovered volume to injection volume;
- Inward hydraulic gradient; and
- Maximum injection pressure.

A map showing the location of the PTF injection, recovery, and observation wells is included as Figure 1.

### Recovered Volume to Injection Volume

A summary of the injected and recovered volumes for the week of 11/03/2019 to 11/09/2019 is included in Table 1. The total injected and recovered volumes for the PTF as a daily total are also presented on Figure 2.

During the reporting period no exceedance of the alert level was measured for recovered volume to injected volume. The alert level is the recovered volume shall exceed the injected volume.

## **Inward Hydraulic Gradient**

Table 2 includes a summary of water levels in the recovery and observation well pairs. Hydrographs showing the water level elevation for each recovery well and observation well pair are included in Figure 3.



During the reporting period, there was no exceedance of the alert level for the inward hydraulic gradient. The alert level for the inward hydraulic gradient is that the water level elevation in the paired observation well must be a minimum of 1 foot higher than the paired recovery well.

## Injection Pressure

A summary of the injection pressures during the reporting period is included as Table 3. As part of Florence Copper's focus on testing different wellfield operating strategies, injection well I-03 was operated as a recovery well during the reporting period.

The November 5th maximum pressure recorded from injection well I-02 was 10.12 psi.

During the reporting period no alert levels were exceeded for injection pressure, the injection pressure limit for the injection wells is limited by the fracture gradient of 0.65 pounds per square inch (psi) per foot. For the PTF injection wells this pressure limit equates to 104 psi.

Please contact me at 520-374-3984 if you require any additional information.

Sincerely,

Florence Copper Inc

Richard Tremblay

Vice President Operations

Attachments:

Tables and Figures

cc: Marybeth Greenslade, ADEQ

Nancy Rumrill, United States Environmental Protection Agency

## **TABLES**

Table 1. Injected and recovered volumes (gallons) for the week 11/03/2019 - 11/09/2019

	Daily	Daily	Datia	%
	Injection	Recovery	Ratio	1 -
Date	Flow	Flow	PLS/Raff	Recovery
11/3/2019	320700	384600	1.20	120
11/4/2019	319500	386000	1.21	121
11/5/2019	296300	360500	1.22	122
11/6/2019	318900	386100	1.21	121
11/7/2019	318900	388700	1.22	122
11/8/2019	316600	386400	1.22	122
11/9/2019	315900	381000	1.21	121
Weekly				
Average	315257	381900	1.21	121

Table 2. Average daily water levels in the recovery and observation well pairs (amsl)

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Well Pairs										
Avg Elev	11/3/19	11/4/19	11/5/19	11/6/19	11/7/19	11/8/19	11/9/19			
R-01	1229.40	1228.95	1229.45	1232.24	1233.63	1233.69	1234.43			
0-01	1242.58	1242.02	1240.68	1241.48	1241.93	1241.99	1243.02			
0-07	1240.05	1239.66	1239.31	1239.43	1239.75	1239.85	1240.65			
R-02	1224.16	1222.95	1220.77	1221.32	1221.56	1221.46	1223.52			
0-01	1242.58	1242.02	1240.68	1241.48	1241.93	1241.99	1243.02			
O-02	1241.67	1241.14	1239.78	1240.03	1240.41	1240.47	1241.53			
R-03	1199.47	1199.27	1199.40	1203.64	1195.41	1182.55	1185.24			
O-02	1241.67	1241.14	1239.78	1240.03	1240.41	1240.47	1241.53			
O-03	1239,44	1239.00	1238.08	1236.22	1236.46	1236.49	1237.59			
R-04	1183.64	1183.94	1184.73	1184.56	1184.33	1184.26	1184.23			
O-03	1239.44	1239.00	1238.08	1236.22	1236.46	1236.49	1237,59			
R-05	1180.34	1180.99	1180.18	1179.42	1179.42	1179.42	1179,42			
O-04	1236.18	1235.91	1236.41	1234.90	1235.02	1235.53	1236.35			
R-06	1180.53	1180.53	1180.53	1180.53	1180.53	1180.53	1180.53			
O-04	1236.18	1235.91	1236.41	1234.90	1235.02	1235.53	1236.35			
O-05	1236.97	1236.64	1237.05	1235.95	1236.03	1236.31	1237.04			
R-07	1235.66	1235.32	1235.62	1234.81	1234.78	1235.01	1235.68			
O-05	1236.97	1236.64	1237.05	1235.95	1236.03	1236.31	1237.04			
O-06	1238.44	1238.10	1238.16	1237.76	1237.93	1238.05	1238.88			
R-08	1224.96	1224.85	1226.99	1228.36	1228.65	1228.72	1229.79			
0-06	1238.44	1238.10	1238.16	1237.76	1237.93	1238.05	1238.88			
O-07	1240.05	1239.66	1239.31	1239.43	1239.75	1239.85	1240.65			

Table 3. Injection well pressures (psi)

	I-01			I-02			I-03			I-04		
Date	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX
11/3/2019	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
11/4/2019	0.00	0.00	0.00	0.00	0.00	0.00				00,00	0.00	0.00
11/5/2019	0.00	0.00	0.05	0.04	0.00	10.12	÷			0.00	0.00	0.00
11/6/2019	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0,00
11/7/2019	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00
11/8/2019	0.00	0.00	0.00	0.00	0.00	0.00		-		0.00	0.00	0.00
11/9/2019	0.00	0.00	0.00	0.00	0.00	0.00				0.00	0.00	0.00

I-02 maximum pressure on 11/05/2019 was 10.12 psi; average for the day was 0.04 psi.

I-03, which was converted to a recovery well on 11/1/2019 as part of Florence Copper's focus on testing different wellfield operating strategies, continued operation as a recovery well during the reporting period.

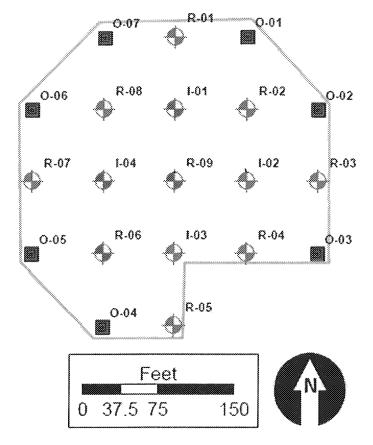


Figure 1. PTF injection, recovery, and observation well locations

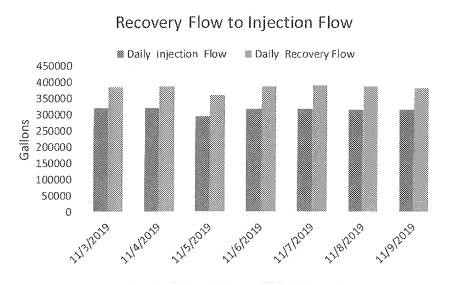


Figure 2. Recovered volume to injected volume

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